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Effects of Electronic Word-of-Mouth on the Potential Customer's Emotions and Product Image

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ABSTRACT

This study investigated how potential customers (N = 28) respond to two types of electronic word-of-mouth (eWOM) regarding the same product. The study simulated reality by having participants read either mainly negative comments from an independent discussion forum (n = 14) or mainly positive comments from a marketer's website (n=14). The results showed that the participants' valence ratings were positive after reading eWOM on the marketer's website and negative after reading eWOM on the independent forum. Although this seems obvious, it is interesting that even though the comments on the independent forum were not considered trustworthy or expert, reading these comments negatively influenced the product image. Participants who read the independent forum rated the product image significantly lower than participants who read the marketer's website. After watching commercial videos, both groups rated the product image higher; however, the difference between the groups remained significant. The results suggest that the emotions evoked by eWOM play a key role in product image. A practical implication for companies may be purchasing targeted advertising on discussion forums to manage potential customers' negative affective reactions.

KEYWORDS

Electronic Word-of-Mouth, Emotions, Product Image, Word-of-Mouth

INTRODUCTION

Word-of-mouth (WOM) refers to interpersonal communication in face-to-face situations in which an information provider shares his/her informal experiences with, information about, or opinions of products, services, or brands with a receiver (e.g., Sandes & Urdan, 2013). Information providers share their experiences with their friends and family, who might, in turn, share these experiences forward, thereby spreading information through WOM. Since the rise of Internet 2.0, methods of sharing experiences and searching for information have changed. Electronic word-of-mouth (eWOM) has evolved through different types of websites that allow content sharing, such as discussion forums, blogs, and social network sites (Constantines & Fountain, 2008). The term eWOM can be defined as

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"any positive or negative statement made by potential, actual, or former customer about a product or company, which is made available to a multitude of people and institutions via the Internet" (Hennig-Thurau, Gwinner, Walsh, & Gremler, 2004). eWOM has a much greater impact than traditional WOM, since online evaluations and experiences have the potential to reach hundreds of thousands of people worldwide (King, Racherla, & Bush, 2014). For this reason, eWOM has begun to attract researchers from many disciplines, such as marketing and human–computer interaction (e.g., Cheung & Thadani, 2012; Chevalier & Mayzlin, 2006; Lee & Youn, 2009; Trusov, Bucklin, & Pauwels, 2009; Yan & Bhatnagar, 2008; Yeap, Ignatius, & Ramayah, 2014).

Internet search engines have become important sources of information for consumers. Recent surveys show that over 80% of consumers use online search engines before making purchase decisions (Fleishman-Hillard, 2012; Slaven, 2016). Search engine results often include links to different types of discussion forums where people freely share their experiences and opinions. Thus, sources of eWOM regarding consumer products can be roughly divided into two categories: independent (i.e., general) discussion forums and marketers' own websites (i.e., websites maintained by a brand, manufacturer, or retailer) (e.g., Lee & Youn, 2009; Pitta & Fowler, 2005). It is known that eWOM follows a U-shaped relationship, meaning that consumers who share their evaluations online tend to be either very happy or very unhappy with a product or service (Dellarocas, Gao, & Narayan, 2010). In general, independent forums tend to contain more negative product reviews, while marketers' websites tend to contain more positive product reviews. Further, the product reviews in independent forums are typically conversational in nature, while those on marketers' websites are typically unrelated individual comments and ratings.

Consumers consider face-to-face WOM to convey trustworthy (informal) information independent from companies' commercials or intentions to sell (Bickart & Schindler, 2001; Lau & Ng, 2001; Miranda, Rubio, Chamorro, & Loureiro, 2014). However, companies have a financial incentive to induce WOM in different ways, such as by using influencers or brand ambassadors in firm-created WOM campaigns or "seeding programs," compensating existing customers to provide product reviews, or stimulating WOM through more traditional marketing actions (Pauwels, Aksehirli, & Lackman, 2016; Trusov et al., 2009). The suspicion that marketers might attempt to influence eWOM may affect people's attitudes towards information on marketers' websites. That is, positive eWOM on marketers' websites may evoke doubts or concerns that negative reviews have been filtered out (Pitta & Fowler, 2005; Reichelt, Sievert, & Jacob, 2014). On the other hand, consumers tend to believe that independent forums include every piece of information about a product/service, including negative reviews (Yang & Mai, 2010).

Research has shown that eWOM influences readers' attitudes, intentions, and behaviors (Reichelt et al., 2014). For example, it has been reported that positive eWOM contributes to positive purchase intentions, while negative eWOM contributes to negative purchase intentions (See-To & Ho, 2014). Further, Sandes and Urdan (2013) showed that exposure to negative or positive comments can have negative or positive impacts on brand image, respectively. There is also evidence that eWOM has a strong impact on actual sales and new customer acquisition (e.g. Chevalier & Mayzlin, 2006; Liu, 2006; Trusov et al., 2009). eWOM seems to be particularly important for longer-term business performance: The effects of WOM last longer than the effects of more traditional marketing actions (Trusov et al., 2009), and some of the long-term effects of traditional marketing communications materialize indirectly through eWOM (Pauwels et al., 2016).

Emotions and eWOM are closely linked. It has been shown that the more emotion (either negative or positive) a product evokes, the more eWOM it induces (Sandes & Urdan, 2013). It is also known that emotions are contagious; that is, people "catch" emotions from other people (Hsee, Hatfield, Carlson, & Chemtob, 1990; Surakka & Hietanen, 1998). There is some evidence that this is also the case in text-based social networks and computer-mediated communication systems (Guillory et al.,

2011; Kramer, 2012). Further, emotions function as human motivators, affecting how people perceive subjects and objects. Human emotional experiences can be measured with the help of different dimensional scales drawn from the dimensional theory of emotions (Bradley & Lang, 1994; Schlosberg, 1954). The most frequently used dimensions are valence (varying from unpleasant to pleasant) and arousal (varying from relaxed to aroused). In addition to changes in experiences, emotions also cause changes in human physiology, motor function, and expressive behavior. For example, the changes in facial electromyographic (EMG) signals can reflect changes in experienced valence. More precisely, the *corrugator supercilii* facial muscle (activated when frowning) activates during negative emotions (e.g., a person frowns in response to negative stimuli) and relaxes during positive emotions (Hietanen, Surakka, & Linnakoski, 1998; Larsen, Norris, & Cacioppo, 2003).

The research on eWOM is still nascent, and more research is needed on, for example, the effects of eWOM in different platforms on consumers' behaviors (Lee & Youn, 2009; Reichelt et al., 2014). The limited findings on this topic are neither conclusive nor congruent (Lee & Youn, 2009). Bickart and Schindler (2001) found that participants who gathered information from online discussion forums reported greater interest in the product topic than those who gathered information from marketer-generated websites. On the other hand, it has also been found that the type of forum to which comments are posted (i.e., independent versus marketer-generated) does not, on its own, affect attitudes towards brands or products (Lee & Youn, 2009; Xue & Phelps, 2004). The present study aimed to extend our understanding of the effects of different types of eWOM on consumers' emotional responses and, further, on product image. In addition, advertising is known to be one of the major components of brand image creation (Meenaghan, 1995). However, there is a lack of research on the effects of commercials on brand/product image in the context of eWOM. To address this research gap, we simulated the real-life situation in which the tone of eWOM in independent forums is mainly negative, while that on marketers' websites is mainly positive. Specifically, we studied the consequences for product image of information searchers first finding negative comments in an independent discussion forum versus finding positive comments on a manufacturer's website and whether commercials can modify this image.

The specific aim was threefold. First, this study sought to investigate how people respond to two types of eWOM regarding the same product. More specifically, we explored whether the two studied forum types have different effects on readers' emotional experiences; ratings of discussion expertise, trustworthiness, and helpfulness; and, finally, willingness to buy the product. The comments used in the study were original comments collected from the two studied types of forums. Second, the study sought to determine whether reading eWOM comments influences product image. Third, it explored whether the product image rating developed from reading the eWOM discussions could be modulated by watching commercials of the product.

To study the effects of eWOM as purely as possible, we selected a context in which the participants belonged to a potential product target group, but did not have strong preconceptions about the product. The studied product was a specific model and brand of snow tire. In Finland, where this study was conducted, it is mandatory to use snow tires from December to February. Thus, Finnish car owners must occasionally consider which snow tires to purchase. The participants in this study were currently taking driving lessons or had recently acquired a driver's license, but did not yet own a car. Thus, it was assumed that the participants had no experience buying or using snow tires, but would consider purchasing snow tires in the future. The participants in this study were between 17 and 19 years old and belonged to the so-called "Generation Z," which comprises people born after 1994 (Balakrishnan, Dahnil, & Yi, 2014; Williams, Page, Petrosky, & Hernandez, 2010) who have had access to information technology from an early age and are comfortable using new information technology methods (including eWOM) to search for information.

METHODS

Participants

The study comprised a total of 28 (19 female, 9 male) voluntary participants. The mean age of the participants was 17.9 years (range: 17 to 19 years). By their own report, all participants had normal hearing and vision. All were in driving school or had recently acquired their driving license (in Finland, one can get a driver's license at the age of 18 and begin driving school six months prior). All were compensated for their participation with two movie tickets.

Apparatus and Physiological Measurements

The eWOM forums were presented to the participants on a laptop computer. Video commercials were presented using E-Prime 2.0 software (Psychology Software Tools, Pittsburgh, PA) running on a PC computer with a Windows 7 operating system. The participants watched the videos on 55" flat-screen TV at a distance of approximately one meter.

Facial EMG activity was measured using the Nexus-10 physiological monitoring device (Mind Media B.V.). The sampling rate was 2048 Hz. The facial EMG measurements were taken from the left side of the face above the *corrugator supercilii* muscle (activated when frowning) using bipolar pre-gelled Ag/AgCl sintered electrodes. The ground electrode was placed over the mastoid bone. To measure the EMG, we followed Fridlund and Cacioppo's (1986) guidelines. An analog high-pass .5 Hz filter was used, and the EMG was further digitally pass-band filtered (4th-order Butterworth) from 20 to 500 Hz.

Stimuli

Two Internet forums were used as priming stimuli. Group A read an independent forum, and group B read a marketer's website. Both forums included discussions concerning a specific snow tire model and brand. Both forums were real web pages that had been slightly modified to allow for offline access. The web pages were shown offline to ensure that the pages stayed the same throughout the experiment (i.e., to exclude the possible effects of dynamically changing commercials) for all participants.

Both forums included 11 comments. The marketer's forum included eight positive comments and three neutral comments, and the independent forum included eight negative comments and three neutral comments about the same snow tire. The order of the comments was as follows: three positive/negative, one neutral, two positive/negative, two neutral, three positive/negative. The comments were authentic postings selected from the original forums. The word count was nearly identical for both forums, so the discussions read by each group were equally long.

The participants were shown five different commercial videos produced by the tire manufacturer. The videos were meant for digital distribution and showed how the tires would react in different (weather) conditions. The style of the videos was speedy and captivating. That is, the videos could be described as entertaining content marketing rather than traditional commercials concentrating solely on product features. The mean video duration was 50 seconds.

Procedure

The participants took part in the experiment individually. First, the experimenter introduced the sound-attenuated and electromagnetically shielded laboratory and explained that the purpose of the experiment was to determine people's reactions and feelings to a driving-related advertisement. Then, each participant signed an informed consent form.

After providing background and demographic information, each participant was asked to imagine that she/he was about to buy a new set of snow tires. The first thing to do would be to search for information using the Internet. At this point, the participant was given a laptop open to either an independent (Group A) or a marketer-generated (Group B) forum and was told that this would be the

first page they found in their search. The participant was asked to carefully read the forum comments at his or her own pace. The participants were assigned randomly to Group A or Group B.

After reading the forum comments, the participant filled in two questionnaires. First, the participant rated the valence and arousal he/she experienced during the reading. The valence and arousal scales were nine-point bipolar scales that varied from one (unpleasant/relaxed) to nine (pleasant/aroused), with five representing a neutral feeling (neither unpleasant nor pleasant/neither relaxed nor aroused). The participant also rated statements regarding the expertise and trustworthiness of the comments, whether the comments be helpful in selecting the tires, and purchase intentions with nine-point Likert scales that varied from one (I disagree) to nine (I agree). Second, the participant filled in a product image form associating the snow tires with 17 adjectives on a scale that varied from one (I disagree) to nine (I agree). The adjectives described features that the manufacturer preferred to be linked to its snow tires (e.g. good grip on ice, good price–quality ratio, and low noise level).

Then, the participant was seated in a chair. First, the participant watched the five commercial videos described earlier one by one in a randomized order while his/her *corrugator supercilii* EMG activity was measured. To explain the physiological measurements, the participant was told prior to the experiment that his/her skin conductance activity would be measured using sensors attached to the face. This explanation was used because our objective was to measure spontaneous facial muscle activations, and knowledge about the facial muscle measurements might have caused the participant to exaggerate or inhibit his/her facial expressions. Between each video, the television screen stayed black for a pause of 30 seconds in order to measure the baseline and post-stimulus activity needed to analyze the physiological signals.

Finally, the participant watched the videos again in a randomized order and rated his/her experience on four different scales. First, the participant evaluated the valence and arousal experienced on nine-point bipolar scales similar to those used for the discussion forum evaluation. Then, the participant evaluated the videos with two nine-point Likert scales measuring liking of the commercial ("I liked this commercial") and belonging to the commercial's target group ("This commercial is meant for someone like me"). The scales varied from one (I disagree) to nine (I agree). After rating the videos, the participant again filled in the product image form.

After the experiment, the participant was debriefed about the purpose of the experiment and the actual use of the psychophysiological measurements. The total experiment duration was approximately one hour for each participant.

Data Analysis

EMG responses were extracted by averaging rectified sample values. A 1000 millisecond pre-stimulus baseline correction was performed. Mean EMG responses were analyzed both during the videos and 1000 milliseconds after stimulus offset to measure reactions during and after the videos.

The data were analyzed with pairwise t-tests using IBM SPSS® Statistics version 23 (SPSS Inc., Chicago, IL).

RESULTS

eWOM Ratings

The mean valence and arousal ratings (± standard errors of the means, SEMs) are shown in Figure 1. The pairwise comparisons showed that Group B rated the experienced valence as significantly more pleasant than Group A, $t(26) = 6.16$, $p < .001$, $d = 2.43$. The between-group differences in arousal ratings were not statistically significant.

The other ratings (± SEMs) are shown in Figure 2. The pairwise t-test showed that Group B rated comments as significantly more expert, $t(26) = 7.31$, $p < .001$, $d = 2.79$; trustworthy, $t(26)=3.99$, $p < .001$, $d = 1.51$; and helpful, $t(26) = 4.34$, $p < .001$, $d = 1.66$, than Group A. Purchase intention ratings did not differ statistically significantly between the groups.

Figure 1. Ratings of valence and arousal while reading the discussions

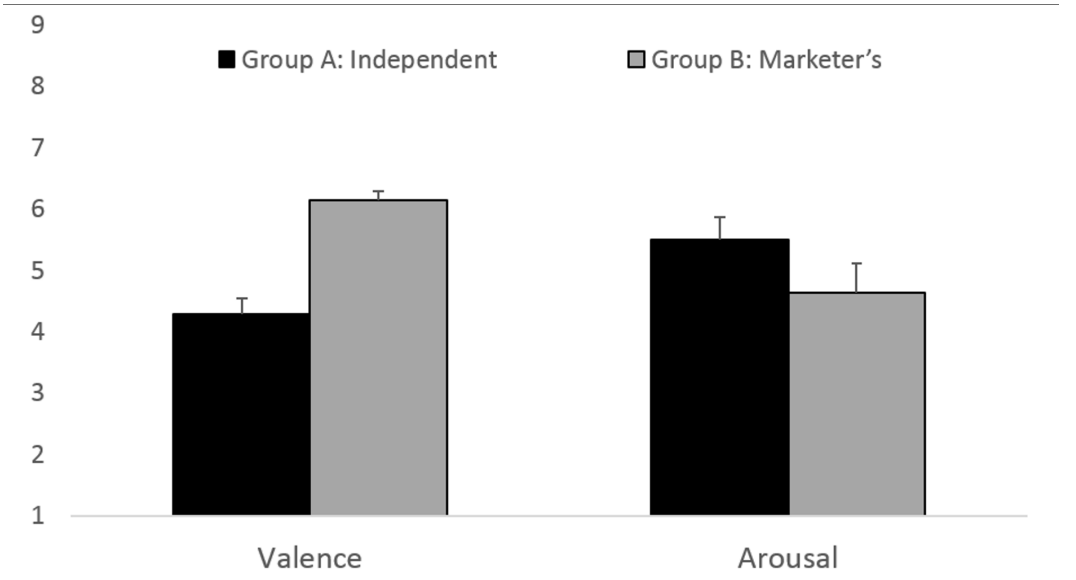
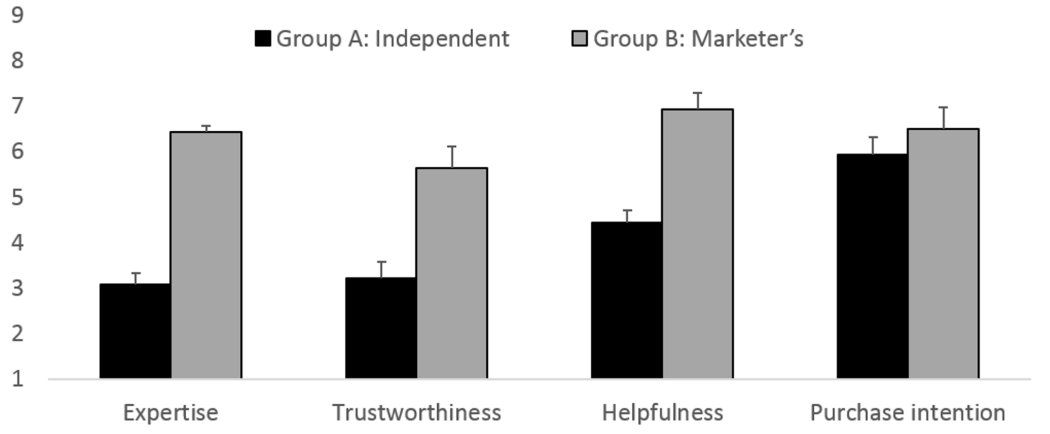


Figure 2. Other ratings while reading the discussions



Reactions to the Commercials

Ratings of the Commercials

The mean valence and arousal ratings (± SEMs) (averaged over all videos) while watching the videos are shown in Figure 3. The pairwise comparison for the valence ratings was not statistically significant between the two groups. The arousal ratings were significantly higher for Group A than Group B, $t(26) = 2.60$, $p < .05$, $d = 0.98$.

The ratings for the liking of the commercial or belonging to the commercial's target group (see Figure 4) were not statistically significantly different between the two groups.

Figure 3. Ratings of valence and arousal while watching the commercials

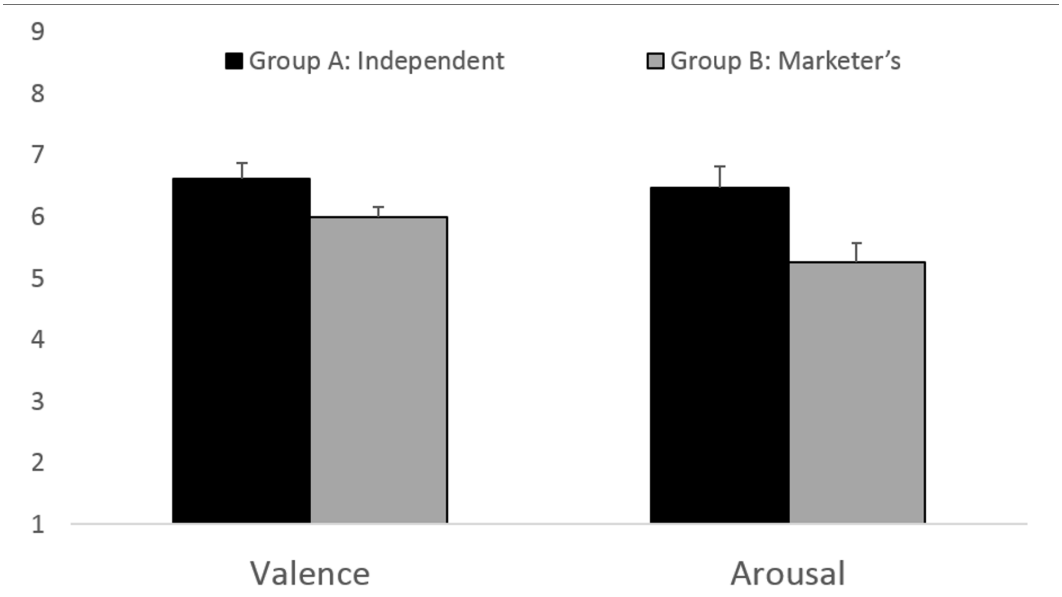
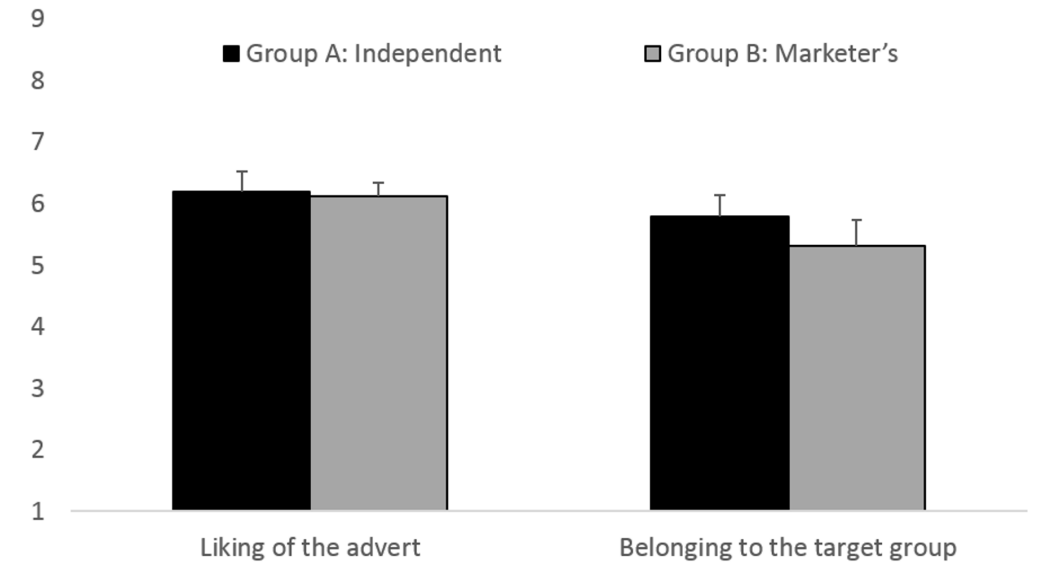


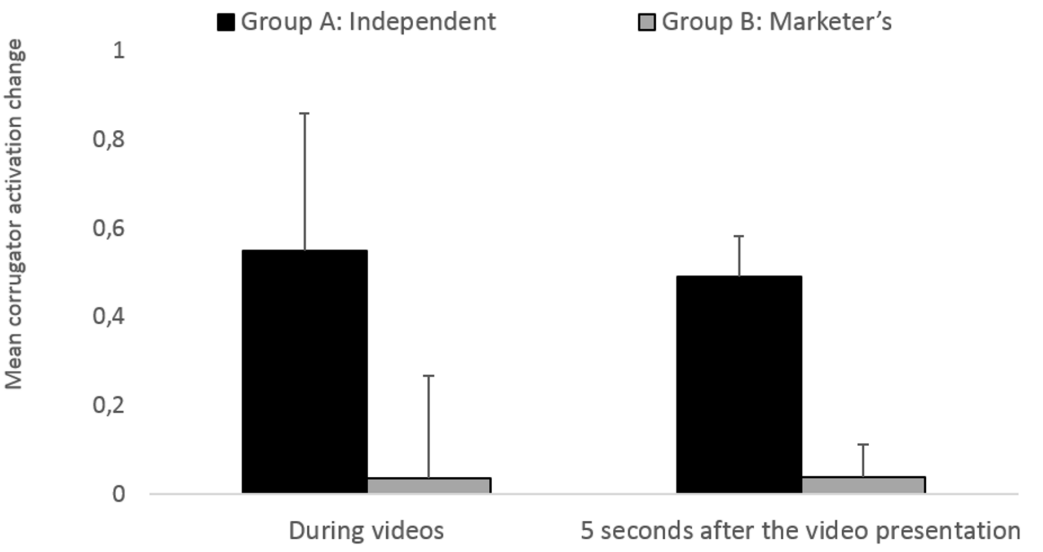
Figure 4. Other ratings while watching the commercials



Corrugator Supercilii Responses

Mean *corrugator supercilii* activity changes (± SEMs) during the videos and five seconds after the videos are shown in Figure 5. The pairwise comparison between the two groups was not statistically significant at either point.

Figure 5. Changes in the level of activation of the corrugator supercilii muscle



Evaluation of the Product Image

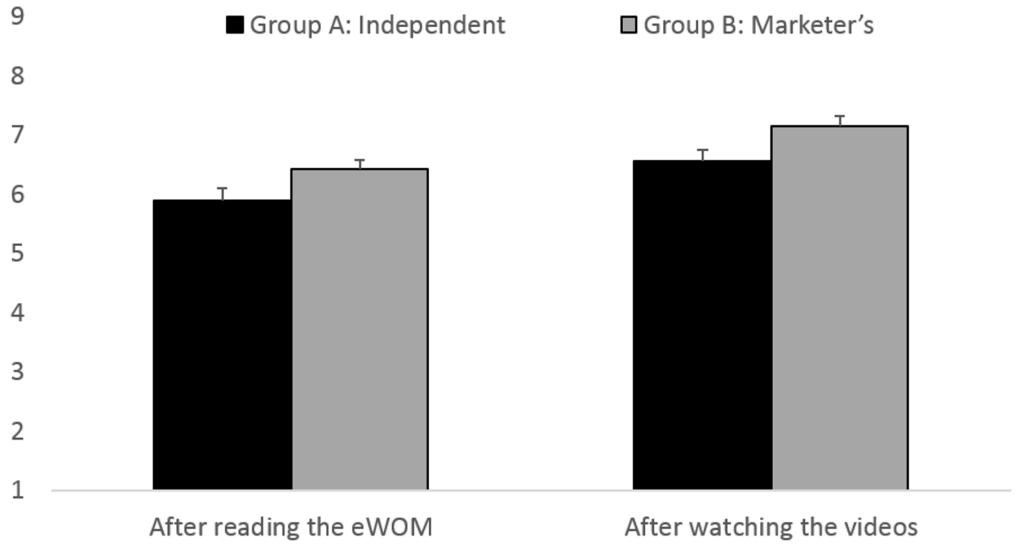
Figure 6 shows the mean product image ratings (± SEMs). The pairwise comparison showed that the product image was rated significantly higher (i.e., as better reflecting the features the manufacturer preferred to be linked to the product) in Group B than in Group A, $t(26) = 2.44$, $p < .05$, $d = 0.97$. After reading the eWOM, the participants in Group B rated the product image significantly higher than participants in Group A, $t(26) = 2.04$, $p = .05$, $d = 0.80$. Furthermore, after watching the commercials, the two groups produced significantly different product ratings, $t(26) = 2.49$, $p < .05$, $d = 0.94$.

Watching the commercial videos significantly increased the overall product image ratings, $t(26) = 7.54$, $p < .01$, $d = 0.35$. Group A rated the product image significantly higher after watching the commercials than after reading the eWOM, $t(13) = 4.33$, $p < .01$, $d = 1.17$. The same effect was found for Group B, $t(13) = 6.71$, $p < .01$, $d = 1.79$.

DISCUSSION

In this paper, we examined the evaluations and emotional experiences evoked by eWOM, as well as the effect of eWOM on product image. In addition, we studied whether the product image ratings evoked by reading eWOM discussions could be modulated by watching product commercials. Our results showed that the positive eWOM on the marketer's website was evaluated as more expert, trustworthy, and helpful in selecting snow tires than the negative eWOM on the independent forum. In addition, those participants who only read the positive comments on the marketer's website rated their experienced valence during reading as higher than those participants who only read the negative comments on the independent forum. Purchase intention ratings did not differ between the two groups. However, reading the eWOM had a significant effect on product image evaluations. It is interesting that even though the comments on the independent forum were not considered to be trustworthy or expert, reading these comments negatively impacted product image. Specifically, participants who read the negative comments on the independent forum rated the product image significantly lower (as measured by the features preferred by the manufacturer) than participants who read the positive

Figure 6. Ratings of the product image



comments on the marketer's website. This effect was found twice: first, after reading the eWOM, and second, after watching the commercials. Importantly, watching the commercials improved the product image for both groups, although the between-group difference was still present.

As discussed in the introduction, consumers tend to trust peer consumers more than advertisers or marketers. In addition, according to earlier research, negative reviews are considered more useful and/or credible than positive reviews (Park & Lee, 2009; Zhang, Craciun, & Shin, 2010). In our study, however, this was not the case. Our findings show that the positive comments on the marketer's website were evaluated as more trustworthy and helpful in selecting snow tires than the negative comments on the independent forum. This finding is somewhat in line with the findings of Kim and Gupta (2012), who found that people tend to rate negative reviews as less informational than positive reviews because people find negative emotions to be irrational. Webpage reputations are also interwoven with information credibility (Toms & Taves, 2004). Thus, it is possible that if the independent forum used in our study had a poor reputation, participants may have been more likely to rate the comments from this forum as untrustworthy and non-expert. However, further investigation is needed to validate this assumption. The impact of website reputation on comment usefulness and credibility has been said to be even greater when the pre-purchase evaluation process is difficult or complex (Park & Lee, 2009). In the present study, we were particularly interested in the effects of eWOM on potential customers who did not have previous experience with the product, which likely increased the influence of the forum's reputation on the target group.

Our findings were in line with several studies that have found that negative comments are more influential than positive ones (e.g., Chevalier & Mayzlin, 2006; Park & Lee, 2009). It has been shown that negative eWOM has the ability to damage brand image and negatively affect consumers' purchase intentions (Sandes & Urdan, 2013; See-To & Ho, 2014). In the present study, the negative comments in the independent forum had a negative influence on product image, even though they were considered untrustworthy and unhelpful. Thus, it is important for companies to actively collect information on consumers' experiences and emotions and use this information to lower customer dissatisfaction in order to reduce negative eWOM (Bachleda & Berrada-Fathi, 2016). Marketers should not overlook or underrate less-trusted comments or discussions in less-trusted websites, since

these can still impact product image and consumer behavior. The results of this study indicate that marketers should continue to invest in publishing eWOM on their own websites, since eWOM referrals on marketers' own sites can be considered trustworthy and expert. It is also possible for companies to take actions for/against eWOM by, for example, answering both positive and negative comments or stimulating eWOM through incentives and campaigns. There is evidence that managing eWOM by responding actively to comments can positively affect a product's or company's image (Sandes & Urdan, 2014) and that investing in eWOM campaigns can attract new customers (Trusov et al., 2009). There is also evidence that consumers use product reviews during the consideration stage more than during the choice stage (Jang, Prasad, & Ratchford, 2012); hence, managing eWOM can have a powerful effect on people's product perceptions during the early stages of the purchase process.

Further, this study found no difference between the experimental groups with respect to purchase intentions, even though the negative and positive comments had an impact on product image. Sandes and Urdan (2013) similarly found that exposure to negative and positive comments impacted brand image but did not change purchase intentions. Of course, self-reported purchase intentions do not necessarily reflect actual consumer behaviors in real purchase situations.

Earlier findings on the emotional effects of emotional expressions in written online comments have been contradictory. On one hand, there is evidence that emotions spread via indirect text-based communications media (e.g., Guillory et al., 2011; Kramer, 2012). On the other, Kim and Gupta (2012), for example, showed that neither positive nor negative emotional expressions in reviews affected participants' own affective states. In our study, reading positive or negative eWOM had a significant effect on participants' experienced pleasantness, even though the comments were primarily related to product features and did not contain intense emotional expressions. Earlier research has shown that a customer's affective state can influence, for example, product evaluations (e.g., Gorn, Goldberg, & Basu, 1993). One explanation is that when people feel good or bad, they tend to use their affective reactions as relevant information in making evaluative judgements (Schwarz & Clore, 1983). That is, positive feelings lead to positive judgements about a target, while negative feelings lead to negative judgements. Our results show that reading positive comments evoked more positive affective states, which may have elicited more positive product ratings.

The evaluation of the manufacturer-produced video commercials revealed no statistically significant difference in experienced valence between the two experimental groups. The participants in both groups rated their feelings while watching the commercials as quite positive. However, the ratings of experienced arousal revealed that those who read the independent forum rated their experienced arousal while watching the videos as higher than those who read the comments from the marketer's website. Further, even though the difference was not statistically significant, Figure 5 illustrates that those who read the independent forum comments tended to experience activation of the *corrugator supercilii* muscle (i.e., frowning) more often than those who read the comments from the marketer's website. These findings may suggest that those who read the comments from the independent forum found watching the commercials more confusing or arousing because the messages in the comments and the commercials were contradictory (i.e., the comments were negative, but the commercials were positive).

Watching the commercials affected the product image for both groups. The product image ratings were significantly higher after the commercials than immediately after reading the eWOM. Thus, the results suggest that companies can reduce or diminish the impact of negative eWOM by investing in marketing. It might also be beneficial to target marketing toward independent eWOM forums, such as by adding a link to a company web page. This strategy may encourage users to gather other types of product feedback or information.

Various eWOM forums offer potential customers vast bodies of information. As the Internet grows in importance as a primary source for information about products and/or services, the role of eWOM is becoming increasingly significant. Traditionally, consumers' decision-making processes have been believed to be linear, such that customers systematically narrow down brand choices until

a selection is made. Recently, however, it has been suggested that the decision journey is a much more dynamic continuous loop, in which customers add and delete brands based on information from online sources, such as online reviews and social media (Elzinga, Mulder, & Vetvik, 2009). Thus, the decision-making process is typically much more complex in reality than in the experimental setup of our study. Another limitation of the present study is related to the experimental design. The purpose was to simulate a common real-life situation, in which reviews on marketers' websites are positively skewed and comments in independent forums are negatively skewed. Thus, the experimental setup lacked conditions in which the marketer's website contained more negative comments and the independent forum contained more positive comments. Further studies should use this kind of design to refine the current conclusions about the effects of comments on valence and the role of eWOM platforms.

In conclusion, our results show that eWOM has a clear effect on readers' experienced pleasantness, which further manifests in perceptions of product image. This was the case for our participants even though the negative comments on the independent forum were not experienced as trustworthy or expert. Our results suggest that the emotions evoked by eWOM comments play a key role in product image considerations. Thus, by managing the affective reactions of people who read eWOM, it might be possible to affect how people think about and judge products. Earlier research on eWOM has focused on entertainment, such as movies and social network sites, or online retailers, such as online bookstores. Our results suggest that the effects of eWOM on emotions and product image are also significant in more traditional product categories, such as winter tires.

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